IN THE SPECIFICATION:

At page 1, after the title and prior to the first heading, please the following new paragraph:

CROSS-REFERENCE TO RELATED APPLICATION

This application is the U.S. National Stage of International Application Number PCT/IB2003/002174 filed 10 June 2003 and published in English 16 December 2004 under International Publication Number WO 2004/109942 A1 with International Search Report.

At page 1, please amend the 2nd paragraph as follows:

Receivers for receiving and processing signals are well known in the art, for example ~~in~~in the form of a GPS (Global Positioning System) receiver of a GPS system.

At page 6, please amend the last paragraph which continues onto page 7 as follows:

Typically in spread spectrum systems, the AGC (Automatic Gain Control) tunes the received information signal level for A/D (analog to digital) conversion based on the noise level. In normal operation conditions, the noise is coming from background noise, which has a constant power level. The problem arises when the noise level rises rapidly and the AGC tries to adjust an incoming signal to a certain appropriate level for an A/D conversion. ~~A fast~~A quickly varying high noise level can cause saturation in the A/D converter and the amplitude of the signal is clipped. If the signal is clipped in conversion, some information signal is lost and thus the receiver performance is degraded.

At page 7, please amend the last paragraph as follows:

Obviously, the performance of a receiver due to transmissions by a communication system transmitter may equally be degraded in a similar situation in case ~~of~~of a ~~another~~ type of a communication system transmitter other than a GSM transmitter and/or ~~another type~~a type of a receiver other than a GPS receiver or a Galileo receiver.

At page 8, please amend the last paragraph which continues onto page 9 as follows:

For PCS and DCS, the passband frequency range of the notch filter has to be 1710 MHz to 1910 MHz, and in case GPS is used ~~as~~as a satellite positioning system, the stop band frequency range has to be 1558.42 MHz to 1580.43 MHz. In order to improve the SNR of received GPS signals to a useful level, a very high attenuation is required for the stop band. Applying a high attenuation, however, increases also the insertion loss of the notch filter at the pass band of the filter. Due to this additional loss after the power amplifier, more output power has to be taken from the power amplifier, which increases the current consumption.

At page 11, please amend the 2nd full paragraph as follows:

When detuning the antenna, also the received signal is attenuated. If the received signal is weak, the attenuation causes as a result that the signal cannot be detected. However, if the signal is strong, it may be possible to detect the signal in spite of the attenuation. This constitutes an advantage compared to the solution proposed in the above cited document US 6,107,960, as here, the blocking or disregarding of satellite signals affects satellite signals of any strength.

At page 11, please amend the 4th full paragraph as follows:

Preferred embodiments of the invention become apparent from the ~~dependent claims~~detailed description that follows below.

At page 14, please amend the paragraph describing Figure 6a and 6b as follows:

Fig. 6a and 6b ~~are a~~are further diagrams illustrating the operation of the second embodiment of the invention;

At page 14, please amend the paragraph describing Figure 8a and 8b as follows:

Fig. ~~8a and 8b~~8a, 8b and 8c are diagrams illustrating the operation of the third embodiment of the invention.

At page 17, please amend the last paragraph that continues onto page 18 as follows:

In a first state, the GSM transmitter 22 does not transmit any signals. In this first, basic state, the GPS antenna 216 is tuned by the tuning component 217 to receive satellite signals in the GPS L1 frequency band of 1570.30 MHz to 1580.53 MHz. The corresponding original GPS antenna frequency response is shown as a first curve in figure 3.

At page 18, please amend the first paragraph as follows:

In a second state, the GSM transmitter 22 transmits signals having a carrier frequency in the range of 1710-1785 MHz, causing wideband noise in the GPS L1 frequency band of 1575.42 MHz +/-5 MHz. The distribution of the power level of transmitted GSM1800 signals over the frequency is depicted as second curve in figure 3. The generated wideband noise is superimposed on any satellite signal reaching the GPS antenna 216. The wideband noise degrades the performance of the

GPS receiver 21, in case it reduces the SNR of received GPS L1 ~~satellites~~satellite signals below an acceptable value.

At page 18, please amend the last paragraph which continues onto page 19, through the 1st full paragraph as follows:

With the shifted GPS antenna frequency response, the antenna isolation between the GSM antenna 226 and the GPS antenna 216 is improved, as indicated by a double headed arrow in figure 3. When a GPS signal reaching the mobile phone 20 is strong, and has thus a rather high SNR in spite of the superimposed wideband noise, the signal received via the GPS antenna 216 may be strong enough for a detection even though the GPS antenna 216 is detuned. When a GPS signal reaching the mobile phone 20 is weak, however, and has thus a rather low SNR due to the superimposed generated wideband noise, the signal received via the GPS antenna 216 is not strong enough for a detection, and thus errors in the evaluation in the converters and DSP processor block 214 are prevented. Therefore, the increased ~~attenuation~~isolation between the GSM antenna 226 and the GPS antenna 216 that is achieved by the control signal from the GSM transmitter 22 to the tuning component 217 eases the performance degradation of the GPS receiver 21.

It is also possible to relate the amount of detuning to the ~~extend~~extent of the respective amplification applied by GSM transmitter 22 to signals which are to be transmitted.

At page 19, please amend the last paragraph through page 21, 1st full paragraph as follows:

For supporting a GPS positioning, the mobile phone 40 of figure 4 comprises a GPS receiver 41. The GPS receiver 41 includes a first receiving chain 43 for receiving and processing L1 signals and a second receiving chain 44 for receiving and processing L2 signals. The L1 receiving chain 43 comprises, connected to each other in series, a first low noise amplifier LNA 431, a first ~~mixer 432~~mixer 435 and a first

variable gain ~~attenuator 433~~attenuator 434. The L1 receiving chain 43 further comprises a first local ~~oscillator 435~~oscillator 432, which is connected to the first ~~mixer 432~~mixer 435. The first local oscillator ~~provides~~432 provides a signal having a frequency which is required for downconverting an L1 signal. The L2 receiving chain 44 comprises, connected to each other in series, a second low noise amplifier LNA 441, a second mixer 442 and a second variable gain attenuator 443. The L2 receiving chain 44 further comprises a second local oscillator 445, which is connected to the second mixer 442. The second local oscillator 445 provides a signal having a frequency which is required for downconverting an L2 signal. The GPS receiver 41 comprises in addition a converters and DSP processor block 414. The first variable gain attenuator ~~433 of~~434 of the L1 receiving chain 43 and the second variable gain attenuator 443 of the L2 receiving chain 44 are both connected to this converters and DSP processor block 414.

For supporting a GPS positioning, the mobile phone 40 moreover comprises a GPS antenna 416. The GPS antenna 416 is connected by means of an enhanced diplexer 417 on the one hand to the first low noise amplifier 431 of the L1 receiving chain 43 and on the other hand via a switch 418 to the second low noise amplifier ~~44 of~~441 of the L2 receiving chain 44. Typically, a diplexer combines two input path signals having different frequencies to one output path signal. The enhanced diplexer 417 ~~comprises a~~comprises detuning circuitry and diplexer functionalities. The detuning function can be done with a capacitance diode or any other suitable component. The detuning circuitry tunes the frequency band, which can be received via the GPS antenna 416.

For supporting a mobile communication, the mobile phone 40 comprises a GSM1800 transmitter 42, which is part of a GSM1800 transceiver. The transmitter 42 comprises a converters and DSP processor ~~block 421~~block 415, a first variable power ~~amplifier 422~~amplifier 414, a ~~mixer 423~~mixer 413 and a second variable power ~~amplifier 424~~amplifier 411. The transmitter 42 further comprises a local oscillator ~~425 which~~412 which is connected to the ~~mixer 423~~mixer 413. The mobile phone 40 further comprises a GSM antenna 426, which is connected to the second

variable ~~amplifier 424~~amplifier 411. The converters and DSP processor ~~block 421~~block 415 has in addition a controlling access to the diplexer 417 and the switch 418.

At page 21, please amend the last paragraph continuing through the 2nd paragraph on page 22 as follows:

While the GSM1800 transmitter 42 is not transmitting any signals, the GPS antenna ~~426 is~~416 is connected via the diplexer 417 only to the L1 ("first") receiver chain 43. The GPS antenna 416 is in resonance at the center frequency of the L1 frequency band, and received L1 signals are forwarded to the L1 receiver chain 43 and processed as described above with reference to figure 2.

When the GSM1800 transmitter 42 is transmitting signals, wideband noise is generated in the L1 frequency band. The converters and DSP processor ~~block 421~~block 415 therefore provides a control signal to the switch 418, which causes the switch 418 to be closed. As a result, signals received by the GPS antenna 416 are provided to ~~both,~~both the L1 and the L2 ("second") receiving chain 43, 44. At the same time, the converters and DSP processor ~~block 421~~block 415 provides a control signal to the diplexer 417, which causes the detuning circuitry in the diplexer 417 to detune the GPS antenna 416 to be in resonance at the center frequency of the L2 frequency band.

The shift of the GPS antenna frequency response is illustrated in figure 5. Figure 5 is a diagram which corresponds to the diagram of figure 3, except that here, the GPS antenna frequency response was shifted exactly to the L2 frequency band. The resulting improvement of the isolation between the GPS antenna 416 and the GSM antenna 426 is advantageously rather high, as indicated by a double-headed arrow in figure 5.

At page 24, please amend the last paragraph continuing through page 26, first full paragraph as follows:

For supporting a GPS positioning, the mobile phone 70 of figure 7 thus comprises a GPS receiver 71. The GPS receiver 71 includes a first receiving ~~chain 73~~chain 63 for receiving and processing L1 signals and a second receiving chain 74 for receiving and processing L2 signals. The L1 receiving ~~chain 73~~chain 63 comprises, connected to each other in series, a first low noise amplifier ~~LNA 731~~LNA 631, a first ~~mixer 732~~mixer 635 and a first variable gain ~~attenuator 733~~attenuator 634. The L1 receiving ~~chain 73~~chain 63 further comprises a first local oscillator ~~735, which~~632, which is connected to the first ~~mixer 732~~mixer 635. The first local oscillator provides a signal having a frequency which is required for downconverting an L1 signal. The L2 receiving chain 74 comprises, connected to each other in series, a second low noise amplifier LNA 741, a second mixer 742 and a second variable gain attenuator 743. The L2 receiving chain 74 further comprises a second local oscillator 745, which is connected to the second mixer 742. The second local oscillator 745 provides a signal having a frequency which is required for downconverting an L2 signal. The GPS ~~receiver 41~~receiver 71 comprises in addition a converters and DSP processor block 714. The first variable gain attenuator ~~733 of~~634 of the L1 receiving chain ~~73 and~~63 and the second variable gain attenuator 743 of the L2 receiving chain 74 are both connected to this converters and DSP processor block 714.

For supporting ~~a GPS~~GPS positioning, the mobile phone 70 moreover comprises a first GPS antenna 716 and a second GPS antenna 719. The first GPS antenna 716 is connected by means of an enhanced diplexer 717 on the one hand to the first low noise amplifier ~~731 of~~631 of the L1 receiving ~~chain 73~~chain 63 and on the other hand via a switch 718 to the second low noise amplifier 741 of the L2 receiving chain 74. The enhanced diplexer 717 comprises a detuning circuitry for tuning the frequency band which can be received via the first GPS antenna 716 from the L1 frequency band to the L2 frequency band. The second GPS antenna 719 is connected equally via the switch 718 to the second low noise amplifier 741 of the L2 receiving

chain 74. The second GPS antenna 719 is tuned in a fixed manner to the L2 frequency band. The switch 718 allows to connect either the first GPS antenna 716 or the second GPS antenna 719 to the second GPS receiving chain 74.

For supporting a mobile communication, the mobile phone 70 comprises a GSM1900 transmitter 72, which is part of a GSM1900 transceiver. The transmitter 72 comprises a converters and DSP processor ~~block 721~~block 715, a first variable power ~~amplifier 722~~amplifier 714, a ~~mixer 723~~mixer 713 and a second variable power ~~amplifier 724~~amplifier 711. The transmitter 72 further comprises a local oscillator ~~725 which~~712 which is connected to the ~~mixer 723~~mixer 713. The mobile phone 70 further comprises a GSM antenna 726, which is connected to the second variable ~~amplifier 724~~amplifier 711. The converters and DSP processor ~~block 721~~block 715 has in addition a controlling access to the diplexer 717 and the switch 718.

At page 26, please amend the last paragraph continuing through page 29, first full paragraph as follows:

While neither the GSM1900 transmitter 72 nor the GSM850 transmitter is transmitting signals, the first GPS antenna 716 is connected via the diplexer 717 only to the first GPS receiver ~~chain 73~~chain 63. At the same time, the second GPS antenna 719 is connected via the switch 718 to the second GPS receiver chain 74. The first GPS antenna 716 is in resonance at the L1 frequency band, and received L1 signals are forwarded to the first GPS receiver ~~chain 73~~chain 63 and processed analogously as described above with reference to figure 2. The second GPS antenna 719 is in resonance at the L2 frequency band, and received L2 signals are forwarded to the second GPS receiver 74 chain and processed analogously as described above with reference to figure 2. The GSM1800 transceiver and the GSM900 transceiver may be receiving signals at the same time.

This first situation is illustrated in figure 8a, in which the insertion loss S_{11} in dB of both GPS antennas 716, 719 is depicted over the frequency for the case that there is

no GSM transmission. At the first GPS antenna 716, the insertion loss S_{11} is in general at a basically constant, high value, but decreases to a minimum value at a center frequency of 1575 MHz with a transition range on both sides of this center frequency. This enables a good reception of the L1 band C/A-code and P-code via the first GPS antenna 716 in the first GPS receiving ~~chain 73~~chain 63. At the second GPS antenna 719, the insertion loss S_{11} is in general at a basically constant, high value, but decreases to a minimum value at a center frequency of 1227 MHz with a transition range on both sides of this center frequency. This enables a good reception of the L2 band C/A-code and P-code via the second GPS antenna 719 in the second GPS receiving chain 74.

When the GSM1900 transmitter ~~74 is~~72 is transmitting signals, wideband noise is generated in the L1 frequency band. The converters and DSP processor ~~block 721~~block 715 therefore provides a control signal to the switch 718, which causes the switch 718 to connect the diplexer 717 instead of the second GPS antenna 719 to the second GPS receiving chain 74. Thereby, signals received by the first GPS antenna 716 are provided to both, the first and the second GPS receiving ~~chain 73~~chain 63, 74. The second GPS antenna 719 is now disconnected. At the same time, the converters and DSP processor ~~block 721~~block 715 causes the first GPS antenna 716 to be detuned to be in resonance at the L2 frequency band.

This second situation is illustrated in figure 8b, in which the insertion loss of the first GPS antenna 716 is depicted over the frequency for the case that there is a GSM1900 transmission. At the first GPS antenna 716, the insertion loss S_{11} is in general at a basically constant, high value, but decreases to a minimum value at a shifted center frequency of 1227 MHz with a transition range on both sides of this center frequency. This enables a good reception of the L2 band C/A-code and P-code via the first GPS antenna 716 in the second GPS receiving chain 74. The wideband noise generated by the GSM1900 transmission is thus attenuated. From the L1 band, the C/A-code and the P-code can be received in some conditions via the first GPS antenna 716 in the first GPS receiving ~~chain 73~~chain 63, that is, if the

L1 satellite signal reaching the mobile phone 70 is particularly strong. The disconnected second GPS antenna 719 does not forward any signals.

When the GSM850 transmitter is transmitting signals, wideband noise is generated in the L2 frequency band. The converters and DSP processor block (not shown) of the GSM850 transmitter therefore provides a control signal to the switch 718, which causes the switch 718 to connect the diplexer 717 instead of the second GPS antenna 719 to the second GPS receiving chain 74. Thereby, signals received by the first GPS antenna 716 are provided to both, the first and the second GPS receiving ~~chain 73~~chain 63, 74. The second GPS antenna 719 is now disconnected. The first antenna is kept to be tuned to be in resonance at the L1 frequency band.

This third situation is illustrated in figure 8c, in which the insertion loss S_{11} of the first GPS antenna 716 is depicted over the frequency for the case that there is a GSM850 transmission. At the first GPS antenna 716, the insertion loss S_{11} is in general at a basically constant, high value, but decreases to a minimum value at a center frequency of 1575 MHz with a transition range on both sides of this center frequency. This enables a good reception of the L1 band C/A-code and P-code via the first GPS antenna 716 in the second GPS receiving chain 74. The disconnected second GPS antenna 719 does not forward any signals. The wideband noise generated by the GSM850 transmission is thus attenuated. From the L2 band, the C/A-code and the P-code can be received in some conditions via the first GPS antenna 716 in the second GPS receiving ~~chain 73~~chain 74, that is, if the L2 satellite signal reaching the mobile phone 70 is particularly strong.